

Ham Radio News from Central Indiana
Volume XI No. 1 January 1995

IN THE SPOTLIGHT

A black and white photograph of a woman standing next to a large, open floor-standing printer or copier. She is wearing a patterned vest over a light-colored long-sleeved shirt and dark pants. A clock is visible on the wall behind her.



Memories of WWII

By Steve McCallum, K4URX

An event that was precious in wartime can seem pitifully fragile years later. Yet bright in memory, it can live on. Here is one that has endured 50 years.

Radio operators, many of them hams, on World War II cargo vessels - including the U.S. Army's freight supply (FS) ships manned by the U.S. Coast Guard - sometimes transmitted little exchanges that were strictly against the rules. Of course, they never logged the transmissions, which probably puzzled listening enemy radio operators.

Most non-combat vessels carried only one radio operator, who stood watches according to a predetermined schedule. In wartime, these operators maintained radio silence for fear of revealing their ship's location. So, though trained to communicate in Morse code, the ship operator could only listen, listen, listen, and copy, copy, copy. The only permissible transmissions were SOS or SSS (a signal indicating submarine attack).

Day after day, four to eight hours a day, each lonely operator listened for messages addressed to his vessel. Over time, frustration brought on by inactivity grew.

But when in port, the rules required a radio operator to test his transmitter (though wartime procedure avoided revealing the name of the vessel requesting a signal report.)

The ship's operator transmitted the letters OE in American Morse code - a brief signal

sounding like dit-dit dit. The shore operator replied with a number between 1 to 5, indicating the strength of the ship's signal. Neither the shore-based operator nor anyone else listening knew what ship sent the OE. And the shore stations's terse reply was supposed to end the conversation.

Needless to say, such a tidbit couldn't satisfy the need for conversation of a ship's radioman who had been copying code without touching his key for who knows how long.

So imagine our "Sparks" in the port of Ennui, on the north coast of New Guinea, on a steamy rainy day with nothing in view but jungle and mud. Bored and frustrated, Sparks must at least express his thanks for the signal report. So he continues, like this:

Sparks: TU (Thank you)

Shore operator: DMI (don't mention it)

Sparks: PAM (pleasure all mine)

Shore operator: "dit dit" (so long)

Sparks: "dit" (Indicates something like "Right, See you later!")

That was it. Sparks had talked with someone on the air, for perhaps 10 seconds. He felt better. Now he could go back to sea.

Big Deal? It was at the time. Under the circumstances, it was a spark of comradeship eagerly anticipated every time the ship approached a port, a bright moment in a grim war that, to many who were there, happened only yesterday.

from the Aug 94 Bluegrass ARS, ARNS

Masonic home Xmas cheer....

Recently, the Mid-State Amateur Radio Club solicited Christmas messages from residents of the Indiana Masonic Home. WB9AYB, Bob Doles, enlisted the aid of N9FWF, Walt Howard, Chaplain at the home, to distribute message blanks to the residents who added names, addresses, and phone numbers of the persons to receive the messages.

AA9LR and N9TUK, Vernie and Marilyn Parton, helped collect and organize the messages. Fourteen of the 25 messages received had out-of-state destinations on both coasts and adjoining states. Eleven of the radiograms stayed within the confines of Indiana.

WB9AYB entered the messages into the National Traffic Net on 3.910 KHz. This net meets 365 days a year at 8:30 AM and 4:30 and 6:00 PM.

Tune-in to the net and learn how formal message handling is done. Then send a cost-free message to a distant ham or friend. Your message will be delivered by phone in the distant receiving area.

W9MLN, Dan Cammack, a former club member residing in Kentucky, checks in at 4:30 most afternoons. He would enjoy having hams from this area to chat with.

Listen in, check in, and learn how to become a Prime Time Message Handler! Nearly all health and welfare inquiries and much of the logistics in disasters are handled through formal messages. Are you ready?

-WB9AYB

FCC asked to ban local RFI laws

If a Washington-based communications trade association gets its way, state and local regulation of radio frequency energy matters will be a thing of the past. Instead, jurisdiction on any issue involving RF should rest with the FCC. That's what the Electromagnetic Energy Association says must happen if new technologies are to be developed.

As Newsline's David Black, KB4KCH, reports from our Southeast Bureau in Alabama, what the Association wants could have a major impact on amateur radio.

This could be the start of sweeping new rules that take away power by local governments to regulate radio frequency issues. The Electromagnetic Energy Association is made up of some of America's leading communications and telecommunications companies.

The EEA says existing technologies are on a collision course with increasing state and local RF energy regulation. Amateur radio operators will be watching this one with interest.

Don Stoner, W6TNS, is past president of the National Amateur Radio Association. He says what the Energy Association wants could give hams new ammunition when fighting locally imposed operating restrictions. Stoner says he's backing the Energy Association 100-percent.

Without FCC preemption, the association says technologies including advanced television, digital audio broadcasting, and personal communications services cannot be fully realized.

In a December 22nd petition, the Association asks the FCC to issue a Further Notice of Proposed Rulemaking on the matter. EEA Chairman Jesse Russell calls FCC preemption of state and local regulation of RF energy something whose time has come.

The EEA says FCC preemption is warranted whenever local laws obstruct the intended social, technological or economic benefits of continued service or future advancements in communications.

from NEWSLINE # 907

Cable piracy sentence

The National Cable Television Association's anti-piracy division is praising an Arkansas judge's decision requiring a man convicted of cable copyright theft to pay a record \$2.7 million in restitution.

Jan Gregory Manzer, who went by the alias V.C. Hacker, was fined the \$2.7 million and sentenced to 46 months in jail in U.S. District Court in Hot Springs, Arkansas after being convicted of illegally modifying General Instruments VideoCipher descramblers. He was also found guilty of constructing satellite receivers with software that allowed other dealers to receive unscrambled signals.

Jim Allen, who heads up the NCTA's office of cable signal theft says that operations like Manzer cost the cable and satellite industry billions of dollars a year in stolen programming services. The message of this court decision is that cable piracy leads to jail time."

At the Manzer sentencing hearing, representatives of HBO and Cable Home Communications Corp. testified that Manzer's actions cost the industry millions in lost revenue. Manzer is expected to appeal.

from NEWSLINE # 907

What's in a name?

On his first day on the job, a cub reporter had hardly seated himself when the editor roared, "What I want is names. People want to see their names in print. Write a story with names, names, names!"

Later the cub reporter slid a story across the editor's desk. It began: "The Bell Telephone Company this week issued a new directory for our city. Listed in the publication were the following persons..."



Oracle says, "Read our lips"

ORACLE, New Zealand's Organization Requesting Alternatives through Code Less Examinations has told that nation's national Amateur Radio society that it plans to continue its lobbying efforts to overturn mandatory Morse Code testing.

The lobby group has also issued a policy paper that takes to task the position of the New Zealand's Amateur Radio Transmitters. As reported last week, the NZART endorses continuing the status quo.

Specifically, ORACLE says that the NZART statement does not accurately reflect the actual position of Morse code policy in New Zealand. Rather it reflects a conservative view of the national ham radio society.

With regard to the Minister of Communications letter to NZART also reported on by Newsline, ORACLE Managers say that the response says that the ministry is open to further discussion on this matter. They note that the Minister is legally the Government spokesperson for amateur radio. ORACLE interprets his words as meaning it would be unwise to adopt the three very specific positions recently proposed by the NZART.

ORACLE notes that the letter shows that the New Zealand Government has a more progressive view of amateur radio than appears to be the case for NZART

or the IARU on Morse code policy. It believes that there can be a change at such time as evidence of significant opinion is produced.

Finally, ORACLE says that it is recognized by the New Zealand Government on this issue. It guarantees it will be active in producing evidence in support of abolishing Morse Code testing worldwide.
-from NEWSLINE #907

JOTA date is set by Scouts



Dates have been set for the 1995 Jamboree On The Air operating event. JOTA is an annual event in which Boy Scouts and Girl Scouts and Guides from all over the world speak to each other by means of Amateur Radio.

JOTA 1995 will take place Saturday October 21, 1995 at 00:01 hours local time to Sunday October 22 at 23:59 hours local time. For more information, contact the ARRL Educational Activities Department.

Neo-Nazi news on packet

A South American Neo-Nazi ham radio group is spewing messages of hate out onto the worldwide packet radio airwaves.

Amateur radio operators

throughout north America are outraged by a message originated under the call sign PP5SH that endorse the so called "Skin Head" movement and other fascist doctrine.

The pro-Nazi posting was transmitted into the worldwide packet network through the PY2GN Sat Gateway in Brazil. It heralds the return of fascism to rule the world.

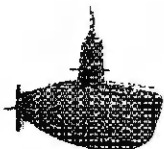
While many SySops tried to kill the pro-Nazi posting as soon as it appeared, the sheer volume and duplicity of routing is making censorship of this messages an almost impossible task.

The Danville repeater

The KB9DWU repeater in Danville, Indiana is offering autopatch to the Indianapolis calling area, 2 meter remote base (DTMF programmable), DTMF pad test, autodials, and emergency autodials. In addition, each user is allowed 1 DTMF pager memory for radio DTMF paging.

On Sunday nights at 7:00 PM the repeater will be linked to 146.835 for the Mid-State Amateur Radio Club net. On the first Monday of the month it will be linked to the 145.290/442.275 repeaters for the Hendricks County Amateur Radio community Net.

Membership is \$18.00 which includes all of the above features. Each user will be allowed 2 autodials. Contact Jay N9IMT at 317-745-6203 for membership info.



A most dangerous radio

By Huck Huckabee AA5BU

In the 1930s the merchant marines of Great Britain and the United States dominated the world. And I, as a teenager, wanted to become a ship's radio operator. So I learned to be a Morse operator. Many of my friends did likewise.

Marine radio gear, then as now, was usually the minimum that met legal requirements. Most ships had a simple crystal-controlled CW transmitter and a two or three-tube receiver. The National SW-3 (a collector's piece today) was typical. It had a regenerative detector and one or two stages of audio amplification.

A CW signal requires some type of "beat oscillator" to produce an audible tone. Those regenerative detectors oscillated to produce the tone. The oscillation power was a fraction of a watt, but with the world's best ground and no isolation from the ship's antenna, that QRP signal could be detected for a great distance.

German submarine torpedoes sent about three-fourths of the U. S. merchant fleet to the bottom. The British fleet suffered even higher losses.

One of my friends survived two sinkings by "U-boats." Another survived the sinking of

five small freighters.

How did the Germans find the ships? The U-boats would surface at night and listen for the signal of one of those radios. Finding one, they could trail the ship, sometimes a member of a convoy. They radioed the ship's location and course to other U-boats, who converged to form a line ahead to ambush the convoy.

It took a long time for our side to learn how the Germans located our ships. After the discovery, our orders for "radio silence" specified that both our transmitter and receiver were to be off.

But until then, that cheap little radio led to the death of many ships and their seamen. Yet it was only doing what it was designed to do - oscillate!

from the Aug 94 Austin ARC "AARC Over",
Steve Means, NSPSW, Editor, and ARNS.

Guest speaker

For most local hams WIBC Radio has always been the radio news voice of Indiana. In recent years the 50 thousand watt clear channel AM station has made a change from the familiar music station to an all talk and news format.

But who can forget those familiar names of local radio history like Fred Heckman, Gary Todd, and Chuck Riley. If you have remained a loyal listener you have become familiar with the new crop of WIBC greats like Jeff Pigeon, Steve Simpson, Rush Limbaugh and Jeff Katz. Even Dick Wolfsie might ring a bell.

But, without Norm Beaty, those familiar names and personalities might not be heard. Norm, WD9BGM, is chief broadcast engineer for WIBC Radio.

Over the past ten years Norm has nursed the station through a period of format changes and technological changes. As we approach the dawn of a new century Norm has been given the challenge of updating the station's broadcast equipment in an effort to keep pace with today's technology.

One of those changes is a new digital activation system for Emergency Broadcasts. It's an automated system designed to quickly warn the public in case of severe weather or a national disaster.

Norm will be our guest speaker at the January 21st meeting. Join us for an interesting talk on this new technology and the future of AM radio in the United States. Norm's talk will begin immediately following the 8 a.m. business meeting.



From Leyden jar to telegraph

By Joe Linker K3OSH

Dean von Kleist of the Cathedral of Kamin invented the first capacitor in 1745, some say. Others credit Professor Musschenbrok of Leyden, who tried to inject electricity into a glass bottle of water while his associate held it in one hand. When Musschenbrok accidentally touched the electrostatic generator to his associate's other hand, the poor fellow got the jolt and Musschenbrok got the credit for inventing the Leyden jar.

Benjamin Franklin demonstrated that lightning carries a charge similar to what the friction generator put in the Leyden jar. He even mused about using electricity for communications.

Nineteenth century industrialization created a demand for speedy communications, and the electromagnet's invention made it possible. Hundreds of scientists and inventors accumulated knowledge of electricity during the period. Oersted showed that electrical current exerts magnetic force. La Place proposed that magnetic compass needles might receive messages carried by wires.

Ampere put small compasses near the ends of 26 wires, so the needles could signal letters of the alphabet. In 1820 Captain Baron Schilling produced a telegraphic instrument that used only five magnetic needles, and required only five wires (with ground as the return).

Harrison G. Dyar operated a telegraph on Long Island in 1826. Ten years later, schoolmaster Joseph Henry developed the electromagnet telegraph and operated it between two buildings at Princeton University. At Germany's University of Gottingen, Gauss and Weber devised a magnetic telegraph in 1833. The following year, Sir Charles Wheatstone and Sir William Cooke obtained patents for their telegraph instrument, England's first.

Those events set the stage for an obscure New York University professor. In 1835 Samuel F.B. Morse proved that signals could be transmitted by a single wire, using his serial coding technique. Then, driven by a fierce desire to gain his inventions's acceptance, Morse gave a public demonstration, only to be ridiculed by nearly everyone.

Five years passed before Congress saw the value of appropriating \$30,000 to construct an experimental line from Washington to Baltimore. Yet the first message Morse clicked over that line, "What hath God wrought?" grabbed public attention and made him famous.

Morse's invention quickly eclipsed the express coach, Pony Express, and carrier pigeon - because of its speed. Morse had at last unshackled us from the speed of human travel.

Three days after Morse's

historic message, a dramatic incident demonstrated the telegraph's value to mankind. At the Democratic national convention in Baltimore, Martin Van Buren seemed the certain choice, yet James Polk won the nomination. When the telegraph delivered the news to Washington, skeptics refused to believe it. But people arriving by train hours later confirmed it - demonstrating the telegraph's incredible speed, and its accuracy as well.

After that, Morse easily raised money for his next venture, and he extended the line to Philadelphia and New York. Soon small telegraph companies began to spring up in the East, South and Midwest. In 1851, railroads started stringing telegraph lines along their tracks, so they could dispatch their trains more quickly.

Western Union's predecessor also began operations in 1851, and the company completed the first trans-continental telegraph line in 1861.

from the Nov 93 Penn Wireless Assn. "X-Mitter" -
Dave Heller, K3TX, editor and ARNS.

*** After a man paid a fortune teller's fee of \$100, she said he was entitled to two questions.

"Isn't that a bit steep?" he asked.

"Yes," she said. "Now what is your second question?"

Marconi VS. Jordan

Two well known names you probably never expected to hear together are Guglielmo Marconi, recognized as the father of radio telegraphy and sports superstar Michael Jordan. Would you believe both men are in the middle of a dispute? It's true and it has to do with baseball.

If you ever wind up just a few blocks east of Birmingham's downtown business district, you may pass by a small city park named in honor of Guglielmo Marconi. Marconi Park is only about a block in size it contains a baseball field inner-city children and others use. The park was named after Marconi because he once visited Birmingham.

Another visitor has been bringing plenty of notoriety to the city, and much more recently. Michael Jordan spent the summer here, playing minor league baseball with the Birmingham Barons. Now, the Barons want to name the park in honor of James Jordan, Michael Jordan's deceased father. The Barons promise to renovate the field if the new name is approved, but the idea is striking out with community activists.

They say Michael Jordan did not do enough work to help the community while he was playing baseball in Birmingham. The Barons say Jordan received so many requests to participate in various projects that granting them all was impossible.

While Marconi spent time in Birmingham, name change opponents say James Jordan had no ties to the city at all. One community leader sez turning Marconi Park into James Jordan Park would mean nothing to the inner-city youth. As we go to air, the controversy over the park continues.

Bogus bulletins

Remember our story last week about an election held at ARRL Headquarters where the staff voted down a union? Well the story was accurate, but it was also ten years old. It seems that there is some prankster out there in radio land who is re-issuing decade old ARRL Official Bulletins with new dates and new bulletin ID's.

And, whomever is providing this service is picking and choosing his topics very wisely. This to make it seem that the story is timely and apropos. We have learned that these re-issued bulletins are showing up on packet radio, on private bulletin boards and even some of the major public data services.

That's where we got bit. And once they enter the Internet they travel very quickly, worldwide. The bottom line on this? If you come across an ARRL Official bulletin that you think you have read before, it's not *deja vous*. You may have read it before, a decade ago!

Radio Shack is expanding

Tandy Radio Shack is planning a

substantial expansion of its retail outlets. According to Wall Street Business News reports, the company expects to open 500 new stores by the end of the century. That will give Radio Shack a total of seven-thousand franchised and company-owned stores.

It's also planning to open 24 new Computer City outlets in 1995. Not in the press release but widely rumored is a major expansion in Radio Shack's highly successful

Fence TVI

By John McClain, WB7CKY

I don't condone what a Phoenix ham did. But it got results, after wideband interference had made his HF operating far less enjoyable than it should be.

When he identified the source as his neighbor's electric fence, he took the standard approach of trying to help solve the neighbor's problem. But negotiations snagged when the neighbor refused to address his problem because he believed the ham's operations were causing the television interference he was suffering.

The Amateur installed a relay that keyed his rig whenever the receiver detected the noise from the fence. It didn't take long for the neighbor to discover that his TV problems only occurred when the electric fence was switched on.

The neighbor didn't operate his fence much after that. He never did discover the true source of his TV problem either.

from the IBM ARC (Boca Raton, Florida) and ARNS

Flashes above thunderstorms

Hundreds of spectacular red and blue flashes of light that extend upward from electrical thunderstorms to altitudes as high as 60 miles recently were recorded on video for the first time.

The unusual flashes occurred over thunderstorms in the Midwest between June 28 and July 12, 1994, during a NASA sponsored investigation of the phenomenon.

To capture the images, principal investigators Davis Sentman and Eugene Wescott, professors at the Geophysical Institute with the University of Alaska at Fairbanks and co-directors of the research project, used special low-light cameras aboard two jet aircraft flown from Oklahoma City.

"The flashes look like the Fourth of July, like Roman candles with fountains," said Sentman. "The video footage far exceeded our expectations."

Some of the flashes extended up through the ozone layer into the ionosphere, the region of the upper atmosphere where auroras occur.

Sentman and Wescott captured 19 black and white images of flashes above thunderstorms in the Midwest last year. Before that, scientists had only anecdotal evidence that the flashes even existed.

But they were able to measure the positions and altitudes of the flashes and even examine their

colors and speeds. This was done by using the two aircraft for triangulation, and improved camera systems designed by Geophysical Institute Project Engineer Daniel Osborne.

They identified two distinct kinds of flashes, which they call sprites and blue jets. Sprites are blood-red flashes with bluish tendrils that "dangle" below. The flashes last just thousandths of a second, and extend upward from storm cloud tops to 60 miles high.

The researchers also recorded radio noise that coincided with the sprite flashes. The recorded signals, when played through a speaker, "pop", making a sound distinct from lightning discharge signals.

They also recorded sprites on a video spectrograph, whose analysis may determine the atomic and molecular sources. Because of the close association with thunderstorms, scientists believe the flashes to be some form of electrical discharge that might pose a threat to high altitude research aircraft.

Blue jets are flashes that form narrow beams, sprays, fans, or cones of a blue or purple hue. "They resemble material ejected from a high-explosive source, or the tracks of atomic particles in a cloud chamber," Wescott said.

Pilots and others have reported blue or green columns of light above thunderstorms for years, but Sentman and Wescott were the first to capture them on video.

They recorded a dozen blue jets over an intense Arkansas storm on June 30, 1994.

The jets appeared to originate at the tops of storm clouds and travel upward to an altitude of about 20 miles. They occurred at various angles and moved at speeds from 20 to 60 miles per second, well above the speed of sound, but far below that of light or radio waves.

The scientists coordinated their observations with researchers at Fort Collins, Colorado, at Pennsylvania State University, and at Stanford University, who made video and radiowave observations from the ground. The University of Alaska leased the aircraft from Aero Air of Hillsboro, Oregon.

Obvious questions for hams revolve around what, if anything, these flashes do to propagation. Do they leave ionized patches that reflect radio signals, and, if so, over what range of frequencies?

And are they responsible for some of the more peculiar noises our receivers make during storms?

We'll probably hear more on the subject in the years to come, as researchers in the field develop a better understanding about what phenomena the flashes represent and the underlying causes.

from the Sept 94 Sierra Intermountain Emergency RA "Sierra News." Dorothy Uebele, N7MXA, Editor and ARNS

1827: George Ohm, German physicist and mathematician, published his study of the Galvanic circuit, stating the relationship known today as "Ohm's Law."



The teacher says, "Yes."

"What kept us before the law was passed?"

*** That woman will buy anything that is marked down. Yesterday she came home with an escalator.

*** Skydiving isn't such a dangerous sport. Nobody's ever had more than one accident!

*** Then there was the snobbish rancher who stopped branding his cattle and sent them out to be engraved.

*** The obvious fact that the planets in the solar system have never been rearranged is proof that God isn't a woman!

*** The government says we should be proud to be paying taxes to our country. Couldn't we be just as proud for about a third of the money?

*** A fine is a tax for doing wrong. A tax is a fine for doing well.

*** He was smart. He took one of those trips where you go now and pay later and he never came back.

*** Eighty percent of lawyers were bottle babies. Even their mothers wouldn't trust them.

*** Vacations are when you dump your family into a car and tell everybody you're going to get away from it all.

*** The trouble with the straight and narrow is that it runs through such dull territory.

*** The cowhand asked the dude, "What kind of saddle do you want - one with a horn or without?"

The dude answered, "Without, I guess. I figure you don't have much traffic around here."

*** My tires wouldn't be bad if I could teach my car to tiptoe.

*** Middle age is no fun because you have to set a good example for the kids.

*** There are no more little red schoolhouses, but there sure are a lot of little-read youngsters.

*** A school kid asks his teacher, "Is it true that the Law of Gravity keeps us on Earth?"

*** A cat may have nine lives but a bullfrog croaks every night.

*** He is the laziest rooster. In the morning, he waits for another rooster to crow, and then he nods his head.

*** Little Timmy enjoyed nothing more than sucking his thumb. It tasted better than food. To break him of the habit, as he was almost six, his mother told him, "If you keep sucking on your thumb, your stomach will blow up! It'll become so big you'll burst!"

A few days later, it was his mother's turn to host the bridge club. The last to arrive was Mrs. Bronson, who was about eight months pregnant. Timmy looked at her and said, "I know what you've been doing!"

*** The captain tells his men, "This isn't your ship. This isn't my ship. This is OUR ship.

The crew said, "Good! Let's sell it!"

*** Imagine a guy who plays a harp all his life, and when he dies, he doesn't go to heaven!

*** Al and Greg go on a fishing trip. The first day, Al catches his limit. Greg gets nothing. Greg can't understand it. Maybe it was just dumb luck. The second day, Al can hardly get his line into the water before he snares a fish. All day long, Al keeps pulling them in. Greg decides to go out alone the next day.

He gets up at dawn, sneaks out, and is on the lake at sunrise. He drops his line into the water, feels a tug, pulls up the line, and there's a note attached to the hook. It says, "Where's Al?"

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BENS WEATHER TIPS

By Ben Woods Channel 8 TV

After waiting a long time for Old Man Winter to "wake up", we've finally had some colder temperatures and accumulating snowfall. December 1994 ended up drier and much warmer than average. Indianapolis received 1.66" of precipitation (-1.68" below normal) and had a monthly average temperature of 38.8 degrees (7.9 degrees warmer than normal).

Indianapolis was also drier and warmer than average for the entire year as well. All that, despite an all time record cold morning on January 19th, when we hit 27 degrees BELOW ZERO. We averaged 53.4 degrees (+1.1 degrees) and totaled 31.61" (-8.33").

Other 1994 weather highlights include a killer tornado that ripped through Klondike, Indiana, near Lafayette, on April 27th. Three people died when the twister touched down without watch or warning at 12:01 a.m..

And we've never had to wait so long for the first snowflake this fall and early winter. We finally recorded a trace of snow in Indianapolis on December 7th. The outlook for January calls for above normal temperatures and near normal precipitation.

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And now more news. After 4 years at WISH-TV, I'll be leaving for a chief meteorologist position at either Columbus or Cincinnati, OH. I've enjoyed working with Cliff and Randy and I've enjoyed writing this monthly letter. I wish all of you the very best.

Ben Woods

Editors note: We all have benefitted from Ben's comments and contributions to our club newsletter. He will be missed. We wish him success in his new position. And to quote an old saying, "may he always have fair winds and following seas" in his journey to a new home and job!

MARC

Mid-State Amateur Radio Club

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